What is claimed is:

1. A plasma processing apparatus comprising:

a vacuum chamber accommodating therein a substrate to be processed, allowing an inner space of the vacuum chamber to be maintained at a vacuum level;

a first electrode fixedly disposed at a location in the vacuum chamber;

a second electrode installed in the vacuum chamber and facing the first electrode, the second electrode being vertically movable so as to vary a distance between the first electrode and the second electrode;

a driving mechanism for vertically moving the second electrode, the driving mechanism being installed outside the vacuum chamber;

a bellows unit for air-tightly sealing an opening, the bellows unit having a frame-shaped member connected to the driving mechanism, wherein the opening, through which the second electrode is driven by the driving mechanism from the outside of the vacuum chamber, is provided at the vacuum chamber;

an electrode supporting member for connecting the frame-shaped member to the second electrode, the electrode supporting member being installed in the vacuum chamber; and

a high frequency power source generating plasma by supplying a high frequency power between the first electrode

and the second electrode.

2. The plasma processing apparatus of claim 1, wherein the first electrode and the second electrode are a lower electrode and an upper electrode, respectively.

3. The plasma processing apparatus of claim 2, wherein the upper electrode is supported from underneath the lower electrode.

4. The plasma processing apparatus of claim 3, wherein the electrode supporting member includes an exhaust ring for uniformly exhausting the vacuum chamber.

5. The plasma processing apparatus of claim 3, wherein the electrode supporting member includes a cylindrical member for protecting an inner wall of the vacuum chamber.

6. The plasma processing apparatus of claim 3, further comprising a substrate supporting member for supporting the substrate to be processed above the lower electrode, the substrate supporting member being vertically movable by the driving mechanism to pass through the lower electrode.